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CASES OF CHRONIC DYS-
ENTERY NON-AMEBIC IN
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DYSENTERY has been divided into the acute and chronic forms; the acute due to infections by the Shiga bacilli or the allied strains identified by Flexner, Kruse, Park and Hiss, and the chronic to the ameba and perhaps to less known members of the colon group than the first-mentioned ones.

In the temperate climates chronic infections of the lower intestinal tract are met with in adults in which the causative organisms are neither the ameba nor those classed in the acute forms of dysentery—they being the true dysentery bacilli and the man-nite-fermenting forms. It is very probable that most of these cases are today being described under the clinical terms of “chronic colitis” and “ulcerating” or “follicular colitis,” “chronic diarrhea,” and otherwise, the bacterial etiological connection of which has received but scant attention. The bacterial observations on four of such cases are reported here, the history of only one being presented in full.

CASE I.—Dentist; 31 years; father died of apoplexy at 65, mother living; habits good. Previous

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history—had measles and chickenpox as a child, and no illness worthy of note up to the present one, but never had been physically strong and always was underweight. Present history—twelve years ago began with gastric pains of an indefinite character and rather constant distress in the upper abdomen, both of which were independent of meals. With periods of remission, he continued up to five years ago, when his bowels became noticeably loose, he passing considerable quantities of mucus, which sometimes was blood streaked, and at times bright blood was voided with the stool. Beginning three and a half years ago and continued for a period of six months, he had normal movements and then again the characteristic discharges above described. At this time his condition was diagnosed as “ulcerative colitis” and an appendicostomy was performed and daily irrigations of the colon from the caput downward by means of saline solution were carried on for three months. For two and a half months subsequent to this treatment his bowel movements were normal—he having about two each day without noticeable mucus or blood. The symptoms of large amounts of gas formation, colicky pains and the diarrheal movements with mucus and blood then returned so that in one week his condition was about as before the last treatment. He was then placed on a fat free and low starch diet with some measure of benefit, but the dysenteric condition was always present. This diet was maintained for one year, at the end of which time the condition became worse than it had ever been. At this stage a diagnosis of prolapse of the abdominal organs was made and the wearing of an abdominal support (belt) advised. No benefit accruing therefrom, extirpation of the colon was suggested, but

refused. Colonic irrigations with thymol solutions were then tried with slight benefit (probably not more so than would have been gained by any other form of daily colonic irrigations). At the time when he was first seen by me, he had had a steady dysentery for seventeen months, no special treatments and only some slight dietetic attentions having been carried out.

Examination: Pale, emaciated, muscles soft, nervous mien, heart and lungs negative, abdomen slightly distended, stomach and intestines low, liver just palpable, but not enlarged, manual gas displacement evident in the ascending and transverse colon, marked gastric splashing; chronic proctitis, rectal dome and lower portion of the sigmoid markedly congested with areas of attached mucus and a superficial ulceration in the sigmoid about 2 mm. in diameter; blood pressure 127 mm. Hg.; weight 112 $\frac{3}{4}$ lbs. Laboratory: Blood color index .8, Hb. 72 per cent. erythrocytes 4,050,000, morphology normal, leucocytes 7,200, differential count normal; urine*

*The urine and feces were collected under these conditions: After an enema to cleanse the lower colon, capsules of carmine were given by mouth to demarcate the stools. The patients were placed on the following diet, and after the carmine had been noted in some subsequent stool the entire next stool was used for examination together with the total output of urine in the twenty-four hours representing the day in which the stool had been obtained. Diet: Morning, two thin slices of well-baked bread with butter liberally applied; one pint of oat meal gruel, made of about 1 $\frac{1}{2}$ oz. or 45 gm. of oat meal, $\frac{1}{2}$ oz. or 15 gm. of butter, 6 oz. or 200 c.c. of milk, 8 $\frac{1}{2}$ oz. or 265 c.c. of water, and one egg. 11 A. M., milk, one pint or 500 c.c. Noon, a good sized piece of steak or roast beef chopped or cut into very fine pieces (about 4 oz. or 125 gm.) and served on a slice of toast; one bowl (about 8 oz. or 250 gm.) of mashed potatoes with $\frac{1}{4}$ oz. or 15 gm. of butter. 4 P. M., milk, one pint or 500 c.c. Night, same diet as for breakfast.

normal, excepting slight albuminuria, uric acid 1.1 gram, total sulphates 2.4 grams (preformed 2.09 grams, conjugate .31 gram), indican high; stomach contents normal (mixed test-meal used); feces* semifluid with blood-streaked mucus, acid reaction, many meat fibres and albumin loss above normal, putrefaction gas result low, bacteria 41 per cent of stool and Gram differential stained slides of the raw feces showed mostly negative organisms of the colon type, all of the negative bacteria being about 72 per cent. of the two types.

The report of the above case answers for the other three also, all of which were in men, with these notable differences. Ages, 37, 44 and 45. One had had typhoid fever seven years before the dysentery history began. In one the dysentery was of four years' standing, the next five and a half, and the third eleven years, all having periods of remission during its course. In one the blood examination showed a more decided anemia, although in the other two it was nearer to normal, one, however, having a leucocyte count of 9,750. One had a mitral blow, probably organic, with slight cardiac hypertrophy. All were emaciated, and had the characteristic urine and feces described.

The reason of the observations in these cases was to note if possible whether there was anything distinctive in the character of the organisms predominant in the intestinal canal of the cases—which apparently were of the colon group. For this purpose loops of the mucus adherent to the upper rectum and sigmoid and scrapings of the ulcer bases were used in the examinations and the inoculating material in the culture work.

In each instance it was evident that the *B. coli communis* was the infecting organism, the mucus

being charged with them, and in the ulcer scrapings it was shown that these organisms had gained entrance into the tissue walls of the gut and were living and probably proliferating there. Scrapings from the mucous membrane of the upper rectum and colon in seven healthy persons did not show the presence of the *B. coli communis* within the tissue of the gut wall when proper precautions had been exercised in the scrapings. In each of the cases the organisms grown in culture were Gram negative, flagella were noted in the form from one (not from the other three), they were non-liquefying, grew readily on all of the culture media (and characteristically in large opaque colonies on the gelatine and most abundantly on potato), produced organic acids in milk, fermented glucose solutions with the production of acid and gas, and did not produce indol in ordinary nutritive broth (two of them did in Witte peptone solution), and the intraperitoneal injections of the bacteria grown from all of the cases were fatal within four days to a rabbit, guinea-pig, and cat in each instance—all of the animals dying within 50 hours, excepting a cat, which lived 93 hours.

It was this definite pathogenesis in lower animals (in which it was evident that these organisms were more regularly fatal than is one's experience with the usual forms of *B. coli communis*) that suggested the making of agglutinating reactions with the serum and organisms from the cases with controls of those of other strains in the hope that some facts might be gained in identifying the type of organism at work in the condition. In each instance it was found that the serums from these individuals agglutinated their own strain of organisms more definitely than they did the *B. coli com-*

munis obtained from innocent sources; still it was evident that the blood of these patients agglutinated the *B. coli communis* of innocent forms more actively than did the blood serums of normal individuals—this being manifested in seven cultures from different normal persons (swabs of the high rectum and scrapings of the sigmoid membrane and the separation of the *B. coli communis* used to obtain the innocent forms). The bacterial deductions from the observation of these cases suggested the following:

1. That there is a chronic form of dysentery due to the *B. coli communis*, and that these cases are not uncommon in the temperate climates.

2. That the form of infecting organisms does not correspond to the Shiga or the mannite-fermenting types, and that they are not possible of differentiation from the known forms of *B. coli communis* of high virulence.

3. That the serums from the cases strongly agglutinated the organisms obtained from that person and more definitely than they did the strains of *B. coli communis* obtained from innocent sources.

4. That the organisms were most fatal to lower animals, decidedly more so than in one's experience with the human *B. coli communis* ordinarily obtained and used in laboratory observations.

5. That the organisms existed in large numbers in the lower intestinal tract of the cases, mostly in the mucus, and that they are capable of destruction of tissue locally with the production of ulcers and then living within the tissue of the gut wall in the bases of them.

6. That in the etiology of these cases we are dealing either with a definite organism of the *B. coli* group, or with *B. coli communis* of a high viru-

lence, strongly hemiparasitic in nature and from which the aggressin production is overwhelming and against the effects of which in susceptible individuals the body cannot resist local tissue infection.

7. That the clinical entity "Chronic dysentery due to the *Bacillus coli communis*" seems warranted, and further that there is reason for the belief that in the production of this disease we are dealing with an organism of the colon group specialized in nature.

